

(19) World Intellectual Property Organization  
International Bureau(43) International Publication Date  
20 February 2003 (20.02.2003)

PCT

(10) International Publication Number  
WO 03/014995 A1

(51) International Patent Classification<sup>7</sup>: G06F 17/60  
(21) International Application Number: PCT/KR02/01503  
(22) International Filing Date: 7 August 2002 (07.08.2002)  
(25) Filing Language: Korean  
(26) Publication Language: English

(30) Priority Data:  
2001/47402 7 August 2001 (07.08.2001) KR

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(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

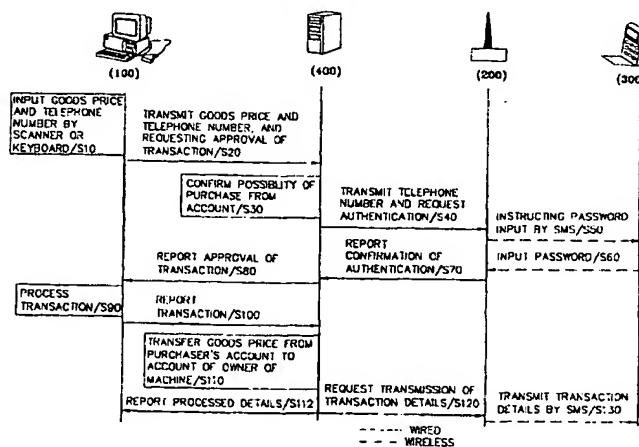
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ACCOUNTING METHOD BY AUTHENTICATION OF MOBILE TELECOMMUNICATION COMPANY



(57) Abstract: Disclosed is a method of making payment in which payment of purchasers who possess their mobile phones is made by using a mobile communication company as authentication agencies of the purchasers. The method is characterized by comprising the steps of: (a) transmitting a mobile telephone number of the purchaser and information on a goods/service price which the purchaser selects to the transaction server from the goods/service provider and requesting payment for the goods/service; (b) transmitting the mobile telephone number of the purchaser to the mobile communication company and requesting an authentication; (c) calling the mobile telephone number in the mobile communication company and having the purchaser input his own password; (d) transmitting information on approval of the purchaser authentication to the transaction server from the mobile communication company when the password inputted in step (c) and a pre-registered password are coincided with each other; and (e) transferring the goods/service price from the purchaser's account to the account of the goods/service provider by the transaction server.

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ACCOUNTING METHOD BY AUTHENTICATION OF MOBILE  
TELECOMMUNICATION COMPANY

**Technical Field**

5           This invention relates to an accounting method by  
authentication of mobile telecommunication, and specifically, a  
method of making payment in which payment of purchasers who  
possess their mobile phones is made by using a mobile  
communication company as authentication agencies of the  
10 purchasers.

**Background Art**

Nowadays, along with rapid progress of computer and  
communication technology, the Internet, which is the limitless and  
open sea of information, has been propagated to all workplaces and  
15 even homes. And with Internet bookseller companies like  
Amazon.com heading the way, the Internet is used for business  
transactions and bill payment. Also, devices like mobile phones  
and PDA's become more and more commonplace and are used in many  
areas.

20           Meanwhile, a cash register is used in most stores such as a

department store or a super market store, etc., in order to automatically execute a total amount of a sale or a balance, receipt issue, etc. Particularly in point of sales (POS), a stock is controlled just at a time on reading a bar code attached to goods, and a series of necessary measures relating to a sale such as a credit inquiry, etc., all are executed at once, and therefore the POS system is used at most sizable stores. For this reason, the POS system includes a personal computer or its own exclusive cash register, along with an optic scanner for reading bar codes, a credit card reader for processing a credit card, etc., which may further be connected to a separate central computer on line for a credit inquiry, a stock control, etc. Hereinafter, all cash registers of any kind that are handled by an exclusive and/or general computer regardless of its high/low class in speed will be simply referred to as "cash register".

However, in case of using cash or a credit card, there is a danger of robbery or loss, and in case of using a credit card, a considerable commission on each transaction is required during a card settlement process, and thus it is difficult to use a credit card settlement service as for a small price of goods.

### Disclosure of Invention

Accordingly, the present invention is made in order to solve the above problems, and one object of the present invention is to provide a method of making payment using a mobile communication company as an authentication agency, in which payment between purchasers who possess their mobile phones and goods/service providers is automatically made by using a mobile communication company, which the purchasers is affiliated with, as authentication agency.

To accomplish the object of this invention, a method of making payment using a mobile communication company as an authentication agency is provided in accordance with one embodiment of the invention, which is executed in a system wherein a mobile communication device of a purchaser and a mobile communication company are connected to each other via a wireless communication network, and a goods/service provider, a transaction server for settlement, which accounts for the goods/service provider and the purchaser as members are established in, and the mobile communication company are connected to each other via a wired communication network, said method being characterized by

comprising the steps of: (a) transmitting a mobile telephone number of the purchaser and information on a goods/service price which the purchaser selects to the transaction server from the goods/service provider and requesting payment for the goods/service; (b) transmitting the mobile telephone number of the purchaser to the mobile communication company and requesting an authentication; (c) calling the mobile telephone number in the mobile communication company and having the purchaser input his own password; (d) transmitting information on approval of the purchaser authentication to the transaction server from the mobile communication company when the password inputted in step (c) and a pre-registered password are coincided with each other; and (e) transferring the goods/service price from the purchaser's account to the account of the goods/service provider by the transaction server.

In the above-mentioned construction, it is preferred that said goods/service provider may be a cash register and said goods/service provider can be constructed so as to read the mobile telephone number in a bar code type.

## **20 Brief Description of Drawings**

Fig. 1 is a block diagram for a network configuration of a system of making payment using a mobile communication company as an authentication agency according to one embodiment of the present invention.

5 Fig. 2 is a flowchart for explaining a method of making payment using a mobile communication company as an authentication agency according to one embodiment of the present invention.

#### **Best Mode for Carrying out the Invention**

Now, a method of making payment using a mobile communication  
10 company as an authentication agency according to a preferred embodiment of the present invention will be described in detail with reference to the accompanying drawings.

Fig. 1 is a block diagram for a network configuration of a system of making payment using a mobile communication company as  
15 an authentication agency according to one embodiment of the present invention. In accordance with the network configuration of a system of making payment using a mobile communication company as an authentication agency as illustrated in Fig. 1, a transaction server (400) for settlement of a goods/service price, an exchange  
20 server (220) of the mobile communication company (200) and a cash

register (100) are connected to each other via a data communication network such as the Internet for example, and said transaction server (400) may also be connected to a bank server (500) via the Internet or an exclusive line. Furthermore, an  
5 exchange department (210) of the mobile communication company (200) and a mobile communication device (300) are connected to each other via a wireless communication network.

To explain such a construction more specifically, the mobile communication company (200) comprises the exchange  
10 department (210) for executing a wireless communication with the mobile communication device (300), an exchange server (220) for executing a data communication with the transaction server (400) via the Internet, and a telephone number DB (230) and a password DB (232) for storing telephone numbers and passwords of  
15 subscribers.

The cash register (100) comprises, as basic function means, a key input means (120) for inputting several functions such as an input of the telephone number, selection of a credit transaction function of the present invention, etc., a bar code scanner (110)  
20 for reading a bar code attached to the goods or a case surface of

the mobile communication device (300) of the purchaser, or indicated on the LCD means, an LCD means (130) for indicating an acting state of the cash register (100), and a central control means (140) for controlling overall operations of the cash register (100). Besides, the cash register (100) further comprises a transmission controller (140) for executing a data communication via the Internet.

The transaction server (400) is linked to a member DB (410) for storing various kinds of information about mobile telephone numbers, etc., of the purchasers who are members and owners of stores who are members, and an account DB (412) for storing information relating to accounts of the members.

The mobile communication device (300) comprises a phone-number storage means (320) for storing at least his own telephone number, a wireless transmitter (360) for communicating with the exchange department (210), a function selector (340) for allowing a user to select various functions such as a telephone number input, a bar code output, etc., an LCD means (130) for indicating an acting state of the mobile communication device (300) or a bar code corresponding to the telephone number, a



device controller (310) for controlling overall operations, and a bar code generator (350) for generating a bar code corresponding to the telephone number in accordance to control of the device controller (310).

5           In the above-described construction, when the purchaser selects a bar code output function by operating the function selector (340), the device controller (310) reads the telephone number stored in the phone-number storage means (320) and transmits the telephone number to the bar code generator (350),  
10       which generates a bar code corresponding to the telephone number and transfers to the device controller (310). The device controller (310) has the LCD means (330) display the bar code.

          Meanwhile, a bar code can be attached to a case of the mobile communication device (300) in a sheet shape. In this case,  
15       the bar code generator (350) is not required.

          A method of making payment using a mobile communication company as an authentication agency in accordance with the present invention is described hereinafter.

          Fig. 2 is a flowchart for explaining a method of making  
20       payment using a mobile communication company as an authentication

agency according to one embodiment of the present invention, in which a solid lines represent a wired communication, dotted lines represent a wireless communication, and the steps in the upper part in the flowchart precede the steps in the relatively lower part. In the method of making payment using a mobile communication company as an authentication agency according to one embodiment of the present invention as shown in Fig. 2, the purchaser and the cash register (100) have to subscribe for, and have been assigned their own individual telephone numbers through, the mobile communication company (200) in advance, and also, have to register a password or an authorization code for execution of functions in the mobile communication company (200). Further, the purchaser and the cash register (100) have to affiliate with, and establish their own accounts in, the transaction server (400) in advance.

At this state, the cash register (100) executes step S10, in which, when the purchaser selects a credit transaction function using the mobile communication device (300) and desired goods, the cash register (100) calculates a price of the goods, and receives the purchaser's input of his mobile telephone number. The purchaser's input of the telephone number can also be executed for

example by outputting his mobile telephone number in a bar code shape by means of the LCD means (330) of his mobile communication device (300) and allowing the cash register (100) to read the bar code on the LCD means (330) and to store it with the goods price.

5           Then, the cash register (100) executes step S20 of transmitting the mobile telephone number of the purchaser and information on the goods price to the transaction server (400), and then requesting a purchaser authentication. In step S30, the transaction server (400), which has received such request,  
10 determines whether reserved money in the account of the purchaser who is a member remains sufficiently to pay for the goods.

          Thus, in case that the balance is sufficient, the transaction server (400) transfers the mobile telephone number of the purchaser and requests an authentication in step S40. Then,  
15 the mobile communication company (200) to have received such request calls the transferred mobile telephone number by means of ARS, SMS, etc., and instructs the purchaser to input his own password in step S50.

          Next, when the purchaser inputs and transmits a password by  
20 means of ARS, SMS, etc., in response to such instructions(step

S60), the mobile communication company (200) transmits information on approval of the purchaser authentication to the transaction server (400)(step S70). Subsequently, the transaction server (400) reports the approval of the transaction to the cash register (100) in step S80. At this state, the side of the cash register (100) transfers the goods to the purchaser and executes a credit transaction process(step S90) and also reports the transaction completion to the transaction server (400) in step S100.

Meanwhile, the transaction server (400) transfers the goods price from the purchaser's account to the account of the owner of the cash register (100), and at the same time, reports the transfer of money to the cash register (100)(step S112) and also to the mobile communication device (300) via the mobile communication company (200) by means of ARS, SMS, etc., in steps S120 and S130.

In the above-described construction, the transaction server (400) refuses an impossibility of the transaction to the cash register (100) when the balance in the purchaser's account is not sufficient to pay for the goods. And, the mobile communication company (200) refuses the authentication when the password inputted

by the purchaser and the pre-registered password of the subscriber are not coincided in step S70, and the refused fact is reported to the transaction server (400), which report the fact to the cash register (100). Of course, even in case that the owner of the cash register (100) or the purchaser is not a member of the transaction server (400), the transaction server (400) reports an impossibility of the account transfer.

The invention is not limited to the above-mentioned embodiments, but rather various changes or modifications thereof are possible without departing from the spirit of the invention. For example, the description is explained for, but not limited to, the step of inputting the mobile telephone number as a bar code. However, the mobile telephone number of the purchaser can be inputted using a key input means, an IR communication means, an RF communication means, etc., instead of the bar code. Also, the present invention is explained for, but not limited to, the cash register, which can also be applied to other apparatus having a key input means, a bar code scan means, an IR communication means, an Rf communication means, etc., such as a general PC, an ATM, an automatic selling machine, a ticket selling machine, etc.

According to the configuration and acting of the method of making payment using a mobile communication company as an authentication agency in accordance with the embodiments of the present invention described above, a payment method will be diversified by executing an authentication using mobile communication devices carried with most modern people, thereby having an effect of increasing security and promotion of transactions.

**Claims**

1. A method of making payment using a mobile communication company as an authentication agency, which is executed in a system wherein a mobile communication device of a purchaser and a mobile communication company are connected to each other via a wireless communication network, and a goods/service provider, a transaction server for settlement, which accounts for the goods/service provider and the purchaser as members are established in, and the mobile communication company are connected to each other via a wired communication network, said method being characterized by comprising the steps of:

(a) transmitting a mobile telephone number of the purchaser and information on a price of goods or a service which the purchaser selects to the transaction server from the goods/service provider and requesting payment for the goods/service;

(b) transmitting the mobile telephone number of the purchaser to the mobile communication company and requesting an authentication;

(c) calling the mobile telephone number in the mobile communication company and having the purchaser input his own

password;

(d) transmitting information on approval of the purchaser authentication to the transaction server from the mobile communication company when the password inputted in step (c) and a  
5 pre-registered password are coincided with each other; and

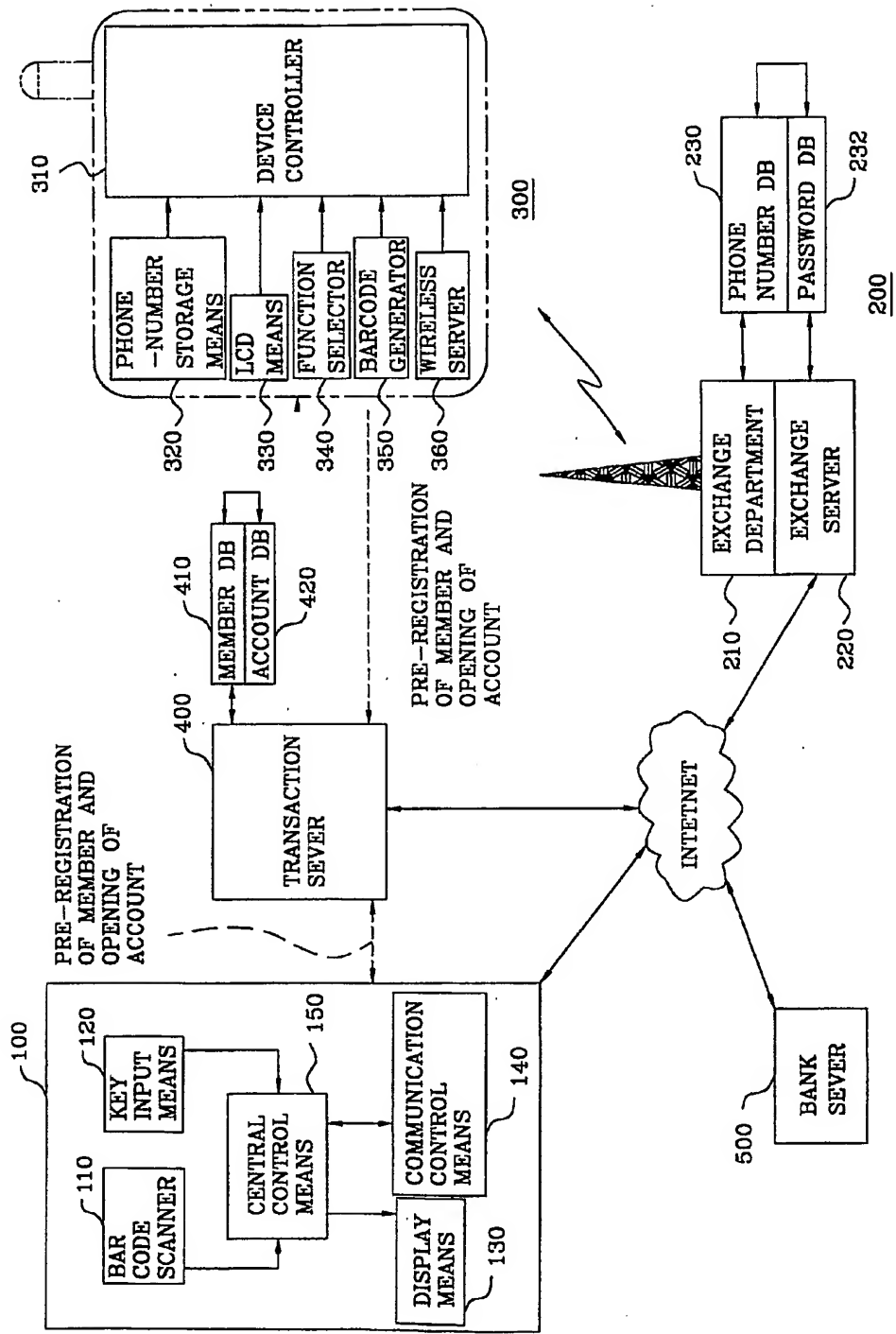
(e) transferring the goods/service price from the purchaser's account to the account of the goods/service provider by the transaction server.

2. A method of making payment using a mobile communication  
10 company as an authentication agency according to claim 1, said method being characterized in that said goods/service provider is a cash register.

3. A method of making payment using a mobile communication company as an authentication agency according to claim 2, said  
15 method being characterized in that said goods/service provider is constructed so as to read the mobile telephone number in a bar code type.

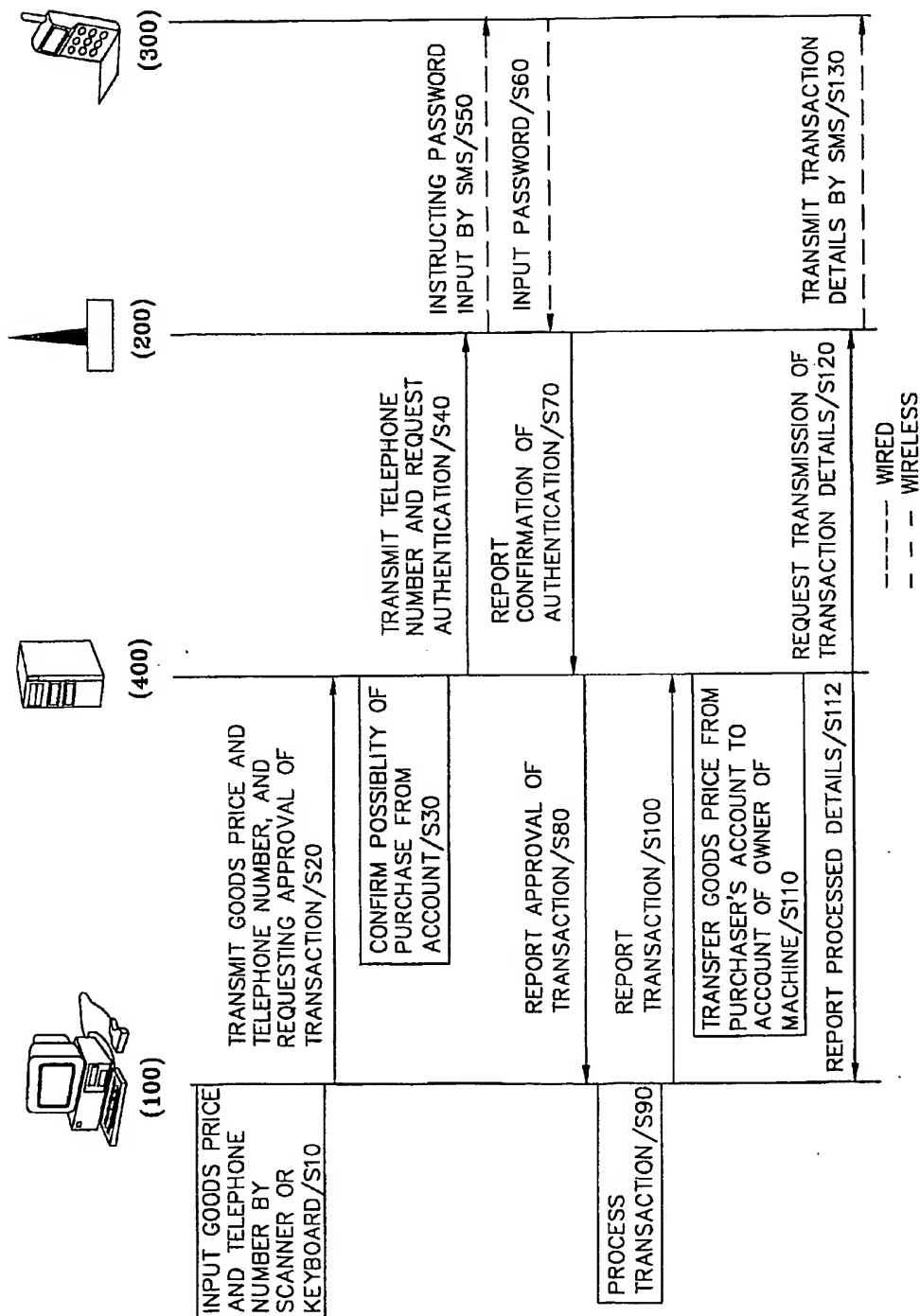


FIG. 1



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FIG. 2



## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR02/01503

**A. CLASSIFICATION OF SUBJECT MATTER****IPC7 G06F 17/60**

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

G06F 17/60, G06F 19/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Patents and applications for inventions since 1975

Korean Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KR 2000-0006796 A (LEE BYUNG HOON) 07 FEBRUARY 2000 (07.02.2000) abstract	1-3
Y	KR 2000-0017997 A (KOTECH SYSTEM) 06 APRIL 2000 (06.04.2000) abstract	1-3
Y	KR 2000-0012607 A (SIM SUNG SIK) 06 MARCH 2000 (06.03.2000) abstract	1-3
Y	KR 2000-0037355 A (MOBILIANCE) 05 JULY 2000 (05.07.2000) abstract	1-3
A	US 5608778 A (B. Waring Partridge, III, Far Hills, N.J.) 04 MARCH 1997 (04.03.1997) page 5, line 1-38	1-3
A	KR 2000-0024137 A (IMP VISION) 06 MAY 2000 (06.05.2000) abstract	1-3
P,Y	KR 2001-0089104 A (JOO DONG SIK) 29 SEPTEMBER 2001 (29.09.2001) abstract	1-3

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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Date of the actual completion of the international search

25 NOVEMBER 2002 (25.11.2002)

Date of mailing of the international search report

26 NOVEMBER 2002 (26.11.2002)

Name and mailing address of the ISA/KR



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